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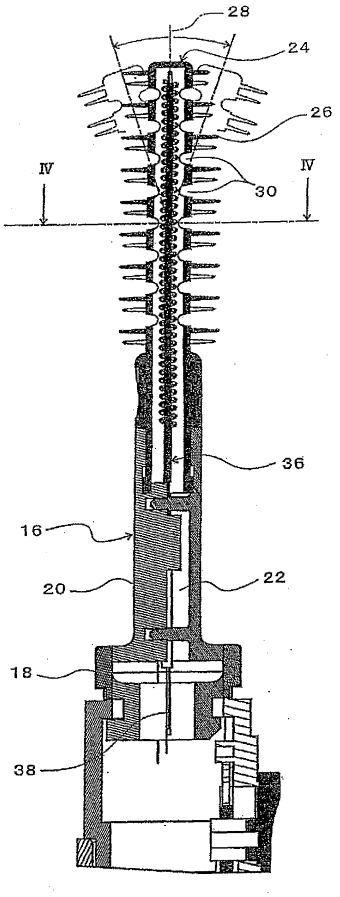
(54) Eyelash curler

(57) An eyelash curler including a substantially tube-shaped grip unit (10) having therein a battery (12) and a switch (14); a brush holder unit (16) protruding from one end of the grip unit in a longitudinal direction of the grip unit; a tube-shaped brush unit (24) made of pliable resins and attached to a tip of the brush holder unit, the outer circumference of the brush unit (24) being formed numerous substantially needle-shaped projections (26); and a heating element (26) provided inside the tube-shaped brush unit (24), the heating element being elastically deformable in a direction of bending and connected to the switch and battery.

FIG. 3



EP 1 974 627 A1

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to an eyelash curler having an electrically heated brush for curling eyelashes.

2. Description of the Related Art

[0002] Various types of cosmetic instruments for beautifully curling eyelashes have been proposed in the past. Japanese Utility Model Registration No. 3066463 discloses a method for subjecting eyelashes to a permanent treatment, and Japanese Patent Application Laid-Open (Kokai) 11-516444 discloses a method for curling eyelashes in which a heated brush is applied to eyelashes.

[0003] In the method disclosed in Japanese Utility Model Registration No. 306646, a rod is brought in contact with and set above the eyelid, the eyelashes are secured against this rod, and a softening agent and fixing agent are applied to the eyelashes to curl them and hold their shape. An elastic wire is implanted in the interior of the rod, and the wire is curved so as to matches the roundness of the eyelid, the size of the eye, and the length of the eyelashes, so that a desired curl can be created. It is not disclosed in Japanese Utility Model Registration No. 306646 that the rod is heated by a heater.

[0004] In the method disclosed in Japanese Patent Application Laid-Open (Kokai) 11-516444, a brush unit equipped with comb teeth is heated by heat source means, and the eyelashes are curled by moving the brush unit against the eyelashes. As an example of the heating means, a nichrome wire (50) placed inside the brush unit and a covering layer (51) is disclosed (see Fig. 4, paragraph 0035 of Japanese Patent Application Laid-Open (Kokai) 11-516444). Japanese Patent Application Laid-Open (Kokai) 11-516444 further discloses a brush unit (151) that is curved along the lower edge of the upper eyelid and is used by being replaced in a holder unit (Fig. 12, paragraph 0061 to 0064).

[0005] The method of Japanese Utility Model Registration No. 306646 is a type of permanent wherein liquid chemicals are used, and it is problematic in that it cannot be readily used by an individual. The eyelash beautifying tool disclosed in Japanese Patent Application Laid-Open (Kokai) 11-516444 uses a nichrome wire, gas combustion heat, or hot water or the like so that heat thereof is transferred to the comb teeth in the brush unit; however, the brush unit is, variously, a linear one or one wherein a curved brush unit is changeably attached; and it becomes necessary to provide a plurality of brush units, and the changing operation is, as a result, bothersome.

BRIEF SUMMARY OF THE INVENTION

[0006] In view of the above, an obj ect of the present invention is to provide an electrically heated eyelash curler that can easily be used by an individual, and it makes it possible to easily and efficiently curl the eyelashes while being appropriately bent so as to match the roundness of the eyelid.

[0007] The above object is accomplished by a unique structure of the present invention for an eyelash curler that comprises a substantially tube-shaped grip unit having therein a battery and a switch; a brush holder unit protruding from one end of the grip unit in a longitudinal direction of the grip unit; a tube-shaped brush unit made of pliable resins and attached to a tip of the brush holder unit, the outer circumference of the brush unit being formed numerous substantially needle-shaped projections; and a heating element provided inside the tube-shaped brush unit, the heating element being elastically deformable in a direction of bending and connected to a drive means or the switch and battery.

[0008] The tube-shaped brush unit is made of pliable resins; and in its interior a heating element capable of being elastically deformed in the direction of bending is inserted, and this heating element is heated by electric power from a battery. Accordingly, when the tube-shaped brush unit is bent, the heating element in the interior is also bent simultaneously, and this bent heating element is held in a bent condition. For this reason, the user can bend the tube-shaped brush unit in accordance with the roundness of her own eyelid; and the user, holding the eyelash curler in this condition, after turning the switch to ON and heating the heating element, moves the tube-shaped brush unit up and down against the eyelashes. As a result, the user is able to perform a curling treatment efficiently while holding the eyelashes with the numerous projections in the tube-shaped brush unit.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0009]

Fig. 1(A) is a front elevational view of one embodiment of the present invention, and Fig. 1 (B) is a diagram showing the interior structure thereof.

Fig. 2(A) is an enlarged front elevational view of a tube-shaped brush unit, 2(B) is a right side elevational view thereof, and 2(C) shows a cross-section taken along the line C-C.

Fig. 3 shows a partial enlarged cross-section of Fig. 1(B).

Fig. 4 shows a cross-section taken along the line the IV-IV in Fig. 3.

Fig. 5 shows a cross-section taken along the lines V-V in Fig. 4.

Fig. 6 is a conceptual diagram of a heating element.

Figs. 7(A), 7(B) and 7(C) are explanatory diagrams

showing the manner of use.

DETAILED DESCRIPTION OF THE INVENTION

[0010] Fig. 1(A) is a front elevational view of one embodiment of the present invention, and Fig. 1(B) shows the interior structure thereof. Fig. 2(A) is an enlarged front elevational view of a tube-shaped brush unit, Fig. 2(B) is a right side elevational view thereof, and 2(C) shows a cross-section taken along the line C-C in Fig. 2(A). Fig. 3 is a partial enlarged cross-sectional view of Fig. 1(B). Fig. 4 shows a cross-section taken along the line IV-IV in Fig. 3. Fig. 5 shows a cross-section taken along the line V-V in Fig. 4. Fig. 6 is a conceptual diagram of a heating element.

[0011] In Fig. 1, the reference numeral 10 designates a cylindrical grip unit with one end thereof closed. The grip unit ahs a griping thickness (of a diameter of approximately 1.5 cm, for example) such that the user can hold it like a pen in the user's fingertips. In the interior of this grip unit 10 is accommodated a battery (AAA type, for instance) 12. The reference numeral 14 is a switch. At the upper end of the grip unit 10, a brush holder unit 16 is secured. The brush holder unit 16 has, at its lower end, a plug 18 that closes the opening in the upper end of the grip unit 10, and a small-diameter tube unit 20 extends from the center of the upper surface of this plug 18, in the longitudinal direction of the grip unit 10. In this brush holder unit 16, a wiring hole 22 is formed, along the center axis thereof, which opens at the upper and lower ends.

[0012] The reference numeral 24 is a tube-shaped brush unit. This tube-shaped brush unit 24 is made of a pliable heat-resistant resins (plastic), and numerous projections 26 of substantially needle shapes are integrally formed in its outer circumference. The needle-shaped projections 26 are, moreover, adequately narrow and very pliable. In the brush unit 24, as seen from Fig. 2(A), numerous cut-ins 30 are formed so that they are aligned in two rows in the longitudinal direction and positioned symmetrically on either side of the centerline 28 of the brush unit 24.

[0013] These cut-ins 30 are formed so that they make it easy to bend the brush unit 24. Thus, the cut-ins 30 are open widely in the outer circumferential surface of the tube-shaped brush unit 24. These openings or the cut-ins 30 are in substantially oval shapes, long in the width direction (that is, in a direction perpendicular to the longitudinal direction of the tube-shaped brush unit 24) as seen from Fig. 2(B). The imaginary lines in Fig. 3 indicate the bent positions of the tube-shaped brush unit 24. In this embodiment, furthermore, the cut-ins 30 penetrate through the wall of the tube-shaped brush unit 24 (the wall forming the tube) and open in the interior of the tube. In other words, the cut-ins 30 constitute holes. The upper end of the tube-shaped brush unit 24 is closed, while the lower end thereof is open.

[0014] A temperature sensor 32 is affixed to the lower outer circumference of the tube-shaped brush unit 24. The portion beneath this sensor 32 constitutes an insertion part 34 that is inserted into the tube unit 20 of the brush holder unit 16. The temperature sensor 32 is a tape-shaped unit which employs the temperature sensing effect of liquid crystal (liquid crystal thermography), so that the color of reflected light is changed by changes in temperature. Accordingly, by verifying this color, the temperature of the tube-shaped brush unit 24 can be known.

[0015] The reference numeral 36 is an elastically deformable heating element. This heating element 36 is made such that, as shown in Fig. 6, one end (the upper end) of a coil-shaped nichrome wire 38 is folded back, and this folded-back linear portion is covered by a heat-resistant insulating tube 40.

[0016] This heating element 36 is provided inside the tube-shaped brush unit 24. More specifically, when the heating element 36 is inserted in the tube-shaped brush unit 24, first of all, the two ends of the nichrome wire 38 of the heating element 36 are brought together and inserted into the wiring hole 22 from the upper end of the tube unit 20 of the brush holder unit 16 and are connected to the switch 14 and battery 12 (that form a drive means) inside the grip unit 10. After that, the tube-shaped brush unit 24 is mounted while causing it to cover the heating element 36, and the insertion part 34 thereof is pressure-inserted and secured to the tube unit 20 of the brush holder unit 16. As a result, when the switch 14 to turned ON, electric current flow from the battery 12 to the heating element 36 to cause heating. Furthermore, the temperature of the tube-shaped brush unit 24 can be known from changes in the color of the temperature sensor 32.

[0017] Next, one example of a manner of use of the above-described eyelash curler will be described with reference to Fig. 7. A user turns on the switch 14 and verifies the temperature of the heating element 36 from the color of the temperature sensor 32, while bending the tube-shaped brush unit 24 in accordance with the roundness of the user's eyelid, eyelash alignment, and preference and the like. At this time, because of the heating element 36 that has a nichrome wire 38 wound in a coil shape and exhibits the property of maintaining a bent condition, that is, a property of elastic deformability, the tube-shaped brush unit 24 is able to hold its bent condition. In use, further, when the cut-ins 30 are set on the inner radial side or outer radial side, the tube-shaped brush unit 24 can easily be bent with a light touch.

[0018] When curling upper eyelashes 42, as illustrated in Fig. 7(A), the tube-shaped brush unit 24 is brought from below against the eyelashes 42, and the eyelashes 42 are guided between the needle-shaped projections 26 and conducted upward. As diagrammed in Fig. 7(B), by causing the cut-ins (holes) 30 on the inner radial side of the bent tube-shaped brush unit 24 to oppose the eyelashes 42, air heated by the heating element 36 can be made to flow from the cut-ins (holes) 30 and make good contact with the eyelashes 42. As a result, the curling of the eyelashes 42 is accomplished efficiently in a short

time.

[0019] Likewise, when curling lower eyelashes 44, as illustrated in Fig. 7(C), it is only necessary to cause the bent tube-shaped brush unit 24 to contact the eyelashes 44 from above and move it downward. At this time also, if the tube-shaped brush unit 24 is bent in accordance with the curvature at the roots of the eyelashes 44, the curling of the eyelashes 44 can be done efficiently since the cut-ins (holes) 30 open toward the eyelashes 44.

Claims

1. An eyelash curler **characterized in that** the eyelash curler comprises:

   a substantially tube-shaped grip unit (1) having therein a battery (12) and a switch (14);
   a brush holder unit (16) protruding from one end of the grip unit (1) in a longitudinal direction of the grip unit (16);
   a tube-shaped brush unit (24) made of pliable resins and attached to a tip of the brush holder unit (16), the outer circumference of the brush unit (24) being formed numerous substantially needle-shaped projections (26); and
   a heating element (26) provided inside the tube-shaped brush unit (24), the heating element (26) being elastically deformable in a direction of bending and connected to a drive means.

2. The eyelash curler according to claim 1, wherein the heating element (26) is a coil-shaped nichrome wire.

3. The eyelash curler according to claim 1 or 2, wherein the brush unit is provided with numerous cut-ins (30) that are aligned in two rows in a longitudinal direction thereof and on either side of the centerline thereof.

4. The eyelash curler according to claim 3, wherein the cut-ins (30) penetrate through the walls of the brush unit (24).

FIG. 1

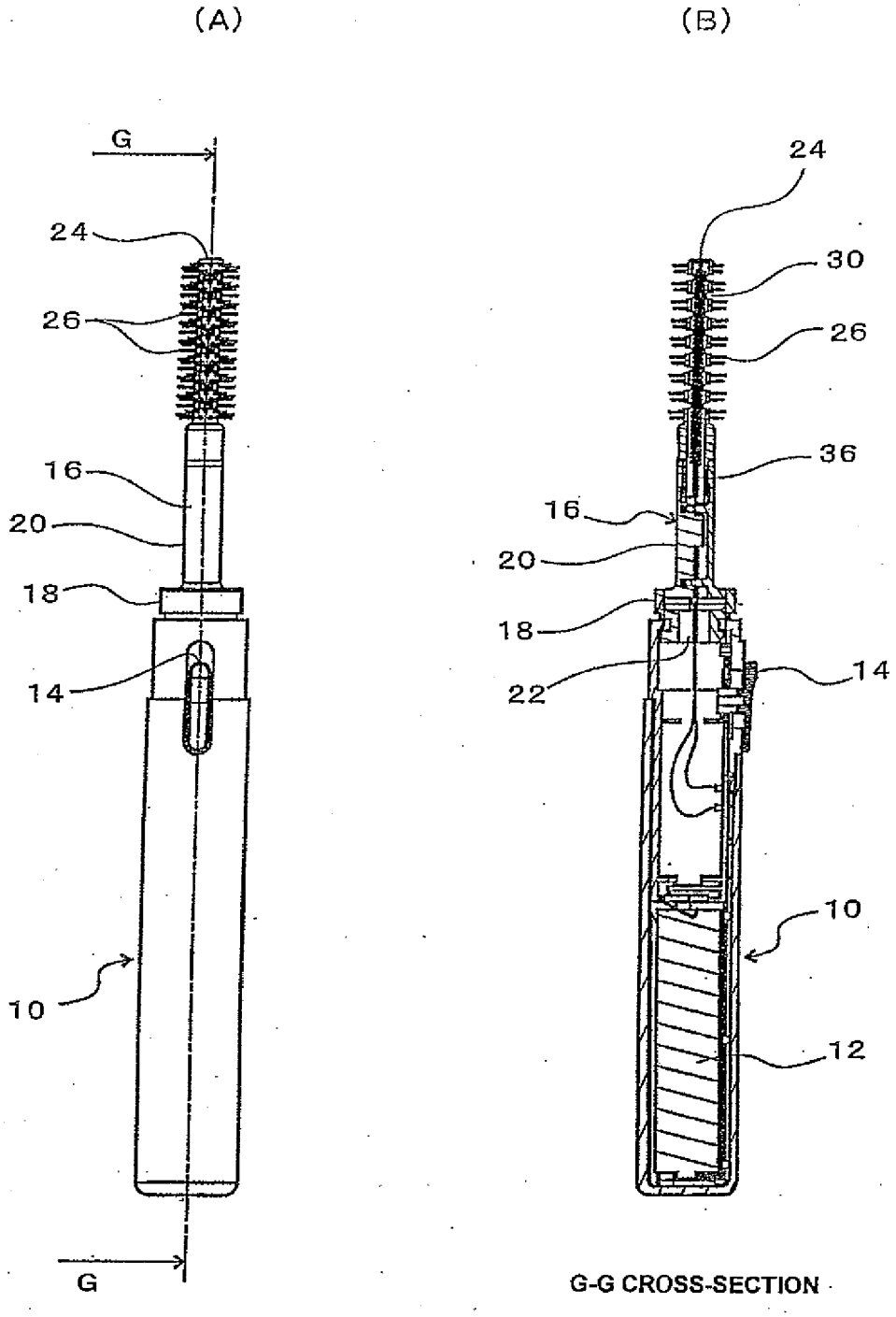

(A)
(B)
G
24
26
16
20
18
14
10
G
24
30
26
36
16
20
18
22
14
10
12
G-G CROSS-SECTION

FIG. 2

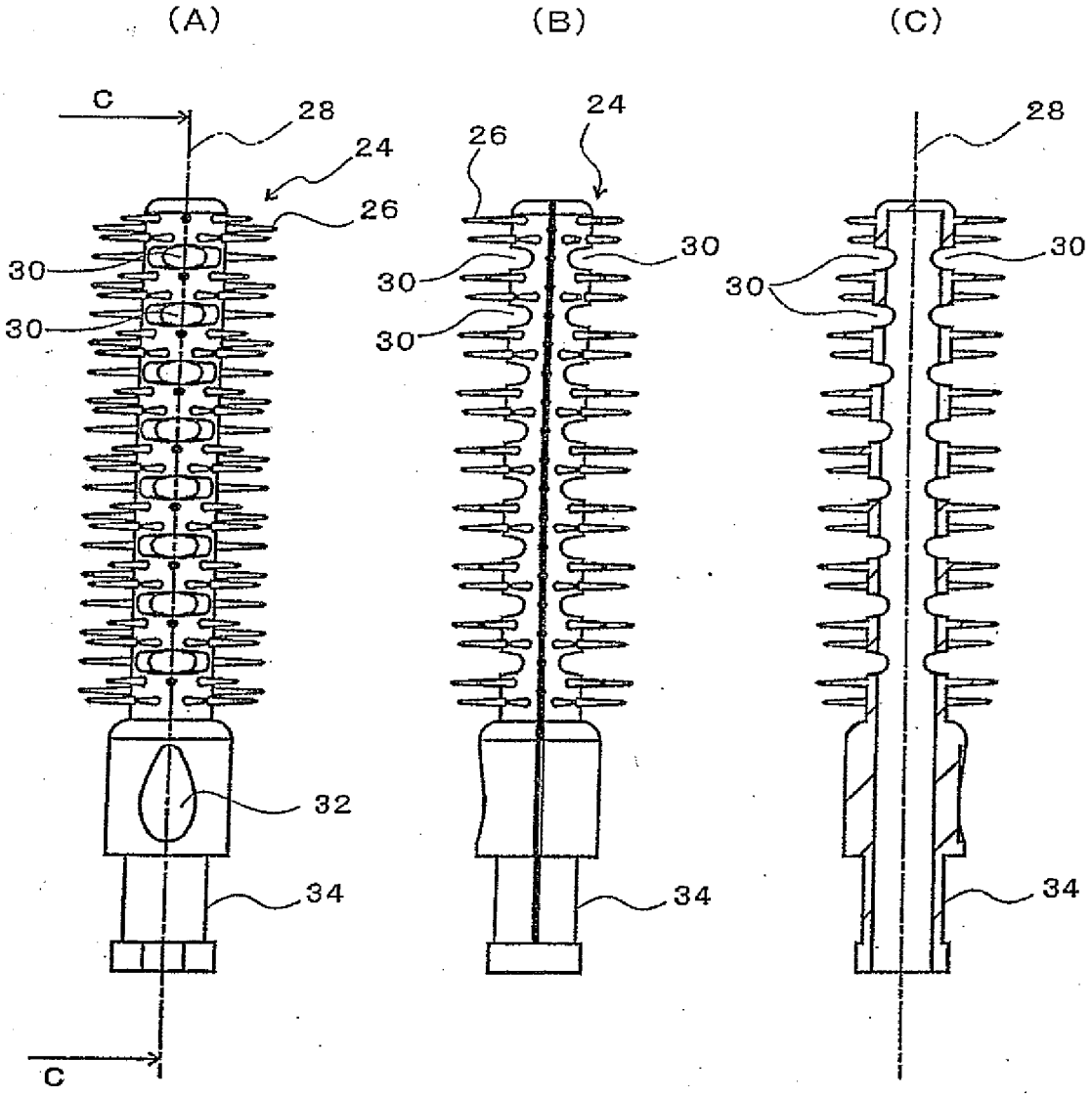


FIG. 3

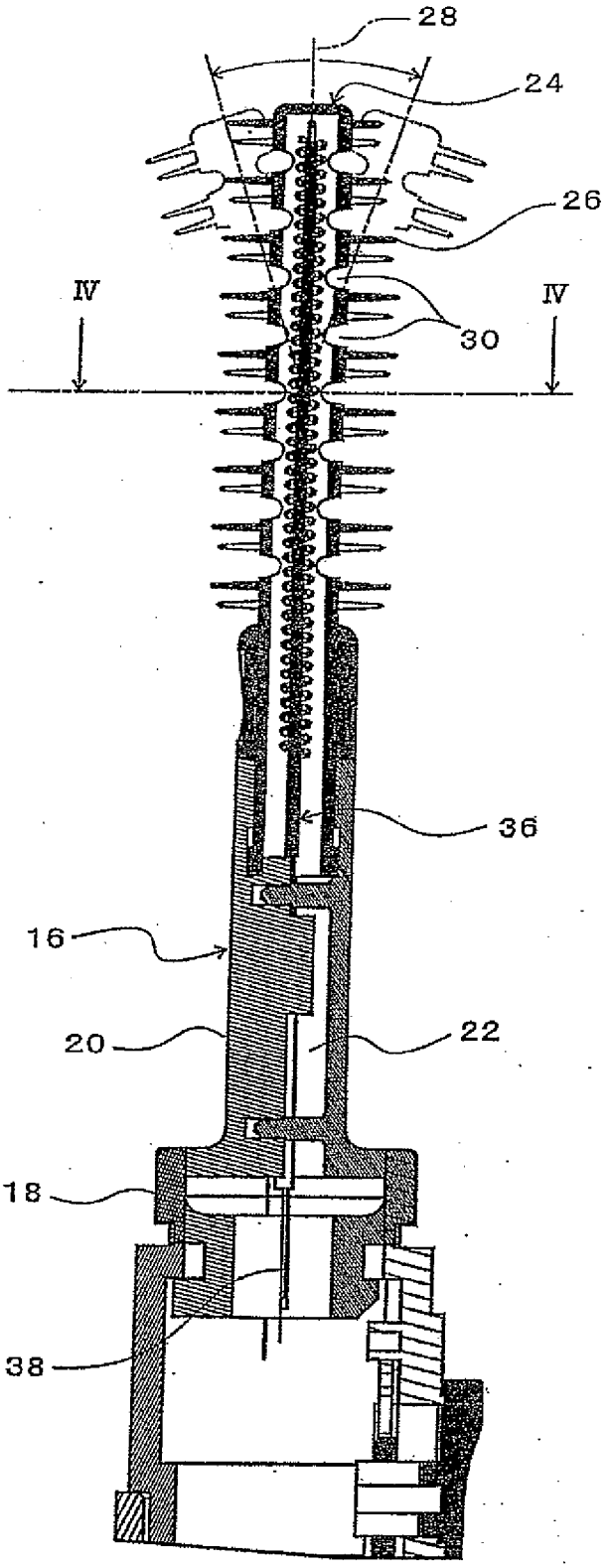


FIG. 4

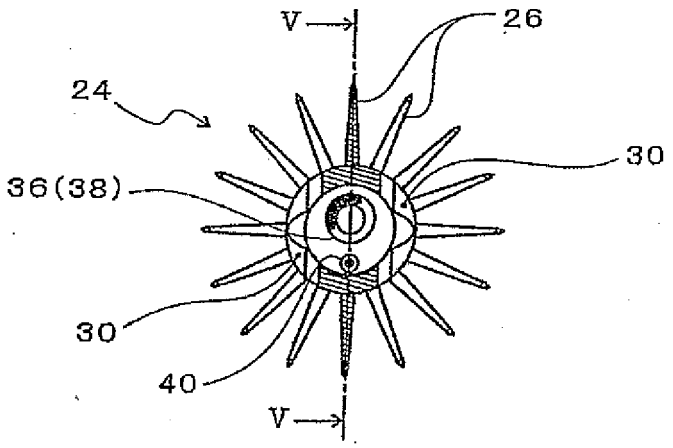


FIG. 5

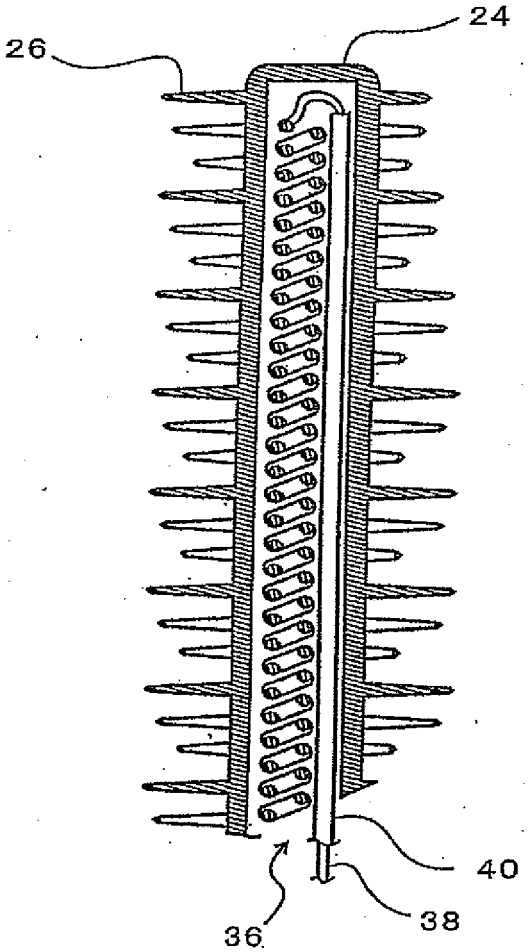


FIG. 6

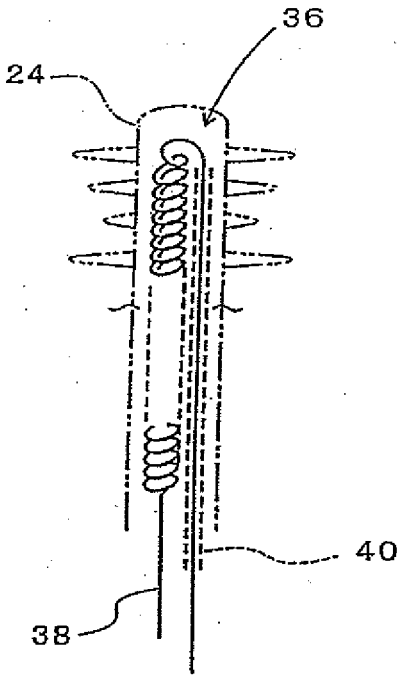
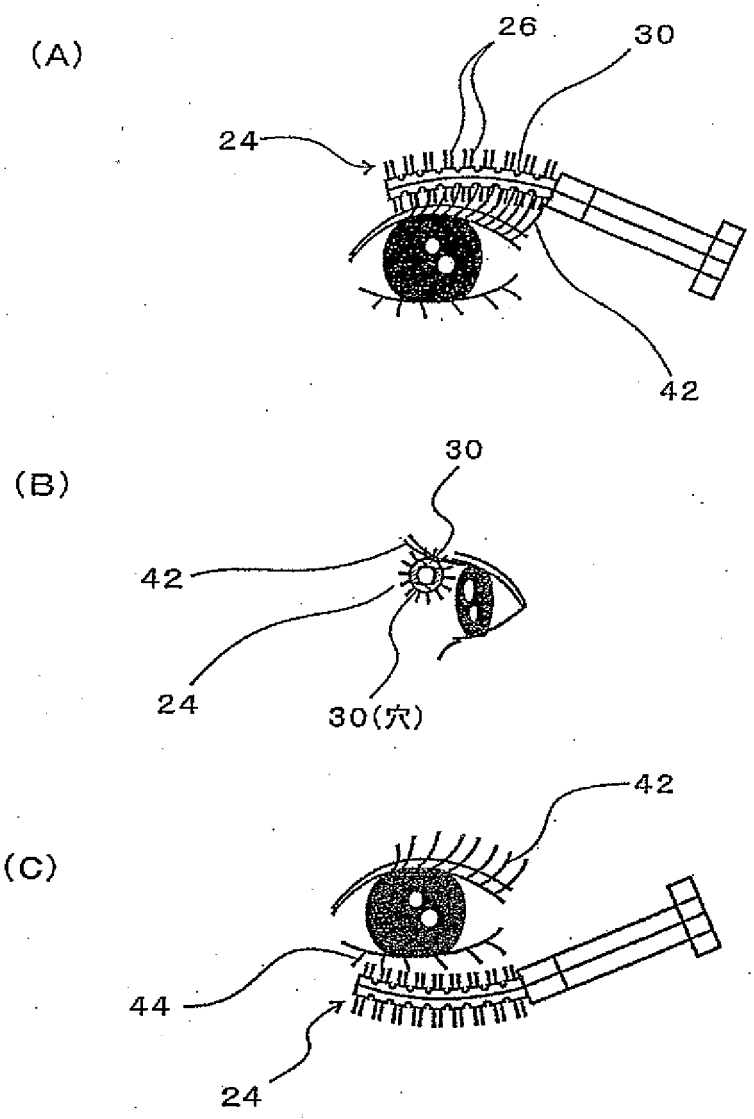


FIG. 7



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EUROPEAN SEARCH REPORT

Application Number
EP 08 15 3332

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	US 6 009 884 A (SUH JEONG JOO [KR]) 4 January 2000 (2000-01-04) * abstract * * column 1, line 29 - column 2, line 2; figure 2a * -----	1-4	
A	WO 00/40112 A (YOUM HYOUN JIK [KR]; LEE YANG HEE [KR]) 13 July 2000 (2000-07-13) * pages 7-9; figures 1-3 * -----	1-4	
A	EP 1 468 628 A (OREAL [FR]) 20 October 2004 (2004-10-20) * abstract; figures 1-9 * -----	1-4	
			TECHNICAL FIELDS SEARCHED (IPC) A45D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	9 July 2008	Lang, Denis

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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- JP 11516444 A **[0002] [0004] [0004] [0005]**
- JP 306646 A **[0003] [0003] [0005]**
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